



Allegro

**The
Leading Name in Device Management
Product & Company Overview**

The logo for Allegro, featuring the word "Allegro" in a white, cursive script font, underlined, set against a dark blue rectangular background.

What's The Market?

“By the year 2010, the Internet will have trillions of users it doesn't have today.....

Most of them will not be human beings.”

- Harbor Research - July 2003



What's Our Mission?

To deliver precision engineered software that enables embedded device manufacturers to realize new business based on Internet connectivity for Machine-to-People and Machine-to-Machine applications.



Who Is Allegro?

- Premier provider of device management and UPnP software technology**
- Millions of units shipped by our customers**
- International customer list**
- Incorporated 02-1996**
- Senior team, engineers average > 18 years embedded experience**
- Privately held, profitable, debt-free**
- Based in Boxborough, MA**



Product Family Overview

XML/SOAP
RomXML

UPnP™
RomPlug

Web Management
RomPager, RomWebClient

CLI Management
RomCLI

Security
SSL/TLS & SSH

Email
RomMailer, RomPOP

Portable – Proven - Pervasive



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Web Server Toolkits



RomPager Advanced Web Server (I)

- Full-featured HTTP 1.0/1.1 implementation**
- Small memory footprint**
- Fully ROMable with optional file system**
- High performance CGI options**
- Basic and Digest Authentication**
- External Password Validation**
- Cache control support**



RomPager Advanced Web Server (2)

Web Application Toolkit

- Offline Page Compiler turns standard HTML to C data
- Separate HTML content and variable access
- Integrated numeric conversion routines
- Dynamic Content (HTML switches, loops, etc.)
- HTML Token compression
- User phrase dictionary compression
- International Dictionaries support
- Dynamic Object Lists

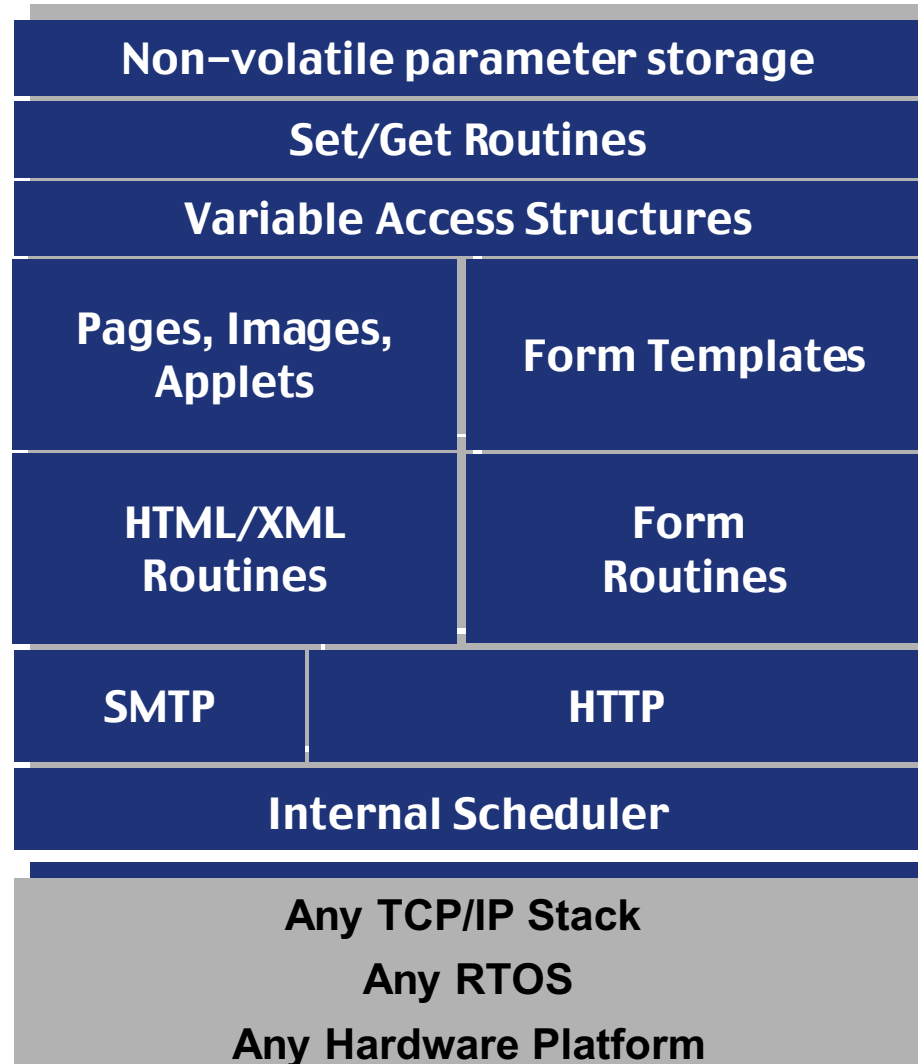


RomPager Advanced Web Server (3)

- State control (URL or HTTP Cookies)**
- Browser-based file upload (RFC 1867)**
- HTTP 1.1 PUT, OPTION, TRACE**
- Remote Host - integrated HTTP proxy**
- Internet Printing Protocol (IPP) support**
- Multiple Listener Ports with different page lists (80, 8080, etc.)**



RomPager Advanced Architecture





RomPager HTML Support

Hard Pages - Tightly Coupled

- Offline Compile/HTML parsing**
- Extremely Compact**
- Efficient dynamic HTML (loops, switches)**
- Powerful, expressive control language**
- ROM storage**

Soft Pages - Loosely Coupled

- Runtime HTML parsing**
- Greater resource requirements**
- Simple Tag language**
- ROM, File System, Network storage**



RomPager Secure

- Superset of RomPager Advanced**
- SSL 3.0 and TLS 1.0 protocol**
- Crypto-suites - RC4, SHA, AES, DES, RSA etc.**
- Compatible with standard Web browsers**
- Dynamic Certificate services**
- Integrated with RomPager Security Realms**
- HTML syntax to switch between HTTP and HTTPS sessions**



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eXtensible Markup Language (XML)

- Processor independent data description**
- Designed for document exchange**
- Extensible syntax**
- Internal storage format undefined**
- Transport Independent**
 - HTTP, Email, FTP**
 - Serial Link, Diskette, etc.**



Embedded XML Characteristics

- Limited Resource Environment**
- Defined Storage Format**
- Low Syntax Volatility**
- Well-formed Documents are required**
- Validated Documents are not required**

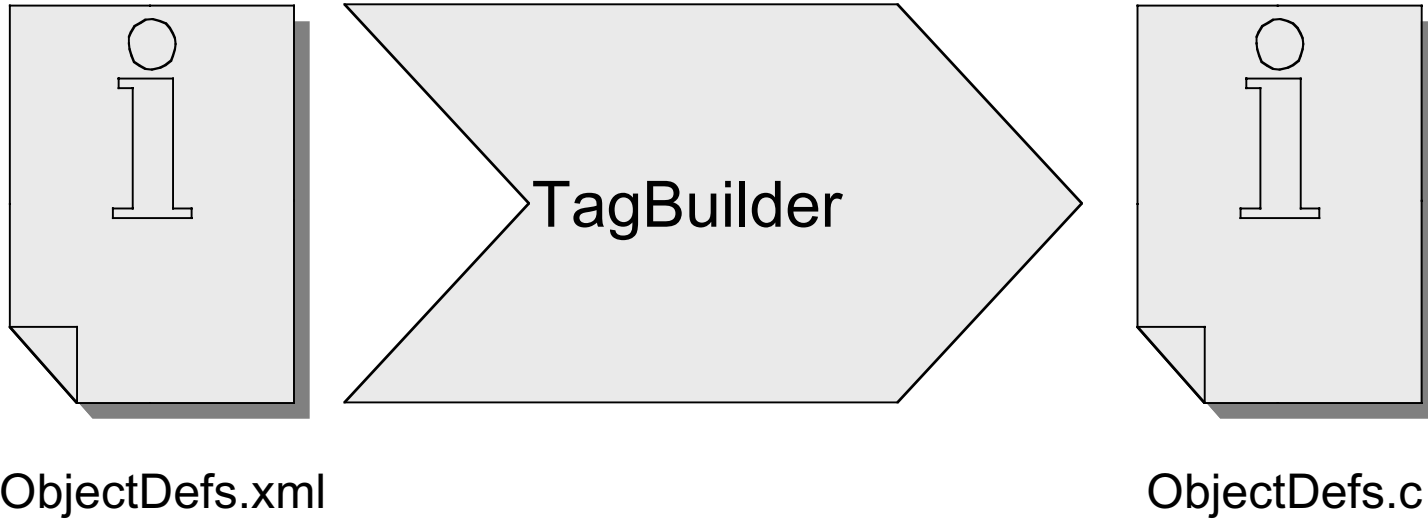


RomXML Characteristics

- ❑ **Small Memory Footprint**
- ❑ **Designed for Embedded Systems**
- ❑ **Parsing transforms XML to C structure**
- ❑ **Framing transforms C structure to XML**
- ❑ **Incremental transformations**
- ❑ **External Syntax Compiler (TagBuilder)**
- ❑ **Unified External/Internal Schema**

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RomXML Preparation





RomXML Advanced Features

- Namespace support**
- Raw Mode support for nested objects**
- Callback support for arrays and complex elements**
- Whitespace reduction on framing**
- Dynamic object lookup**
- SOAP support**



Simple Object Access Protocol (SOAP)

- ❑ **XML objects over HTTP**
- ❑ **Envelope and Body objects**
- ❑ **Soap-Action HTTP header**
- ❑ **RomWebClient has integrated XML support, SOAP with callbacks**
- ❑ **RomPager Web server supports XML and SOAP via UserExits**



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UPnP™ Technology



UPnP Technology

- 0 - Automatic Address Assignment**
- 1 - Discover (SSDP)**
- 2 - Description (XML/HTTP)**
- 3 - Control (SOAP/XML/HTTP)**
- 4 - Eventing (GENA/HTTP)**
- 5 - Presentation (HTML/HTTP)**
- 6 - Application (IGD, AV, Printer, HA, etc.)**



RomPlug Toolkits

Basic Device

- Simple Discovery, Description, Presentation**
- No SOAP, or XML parsing required**

Advanced Device

- Full UPnP Implementation**
- Optional IGD, MediaRender, MediaServer kits**

Control Point

- Full UPnP Implementation**
- Optional MediaControl kit**

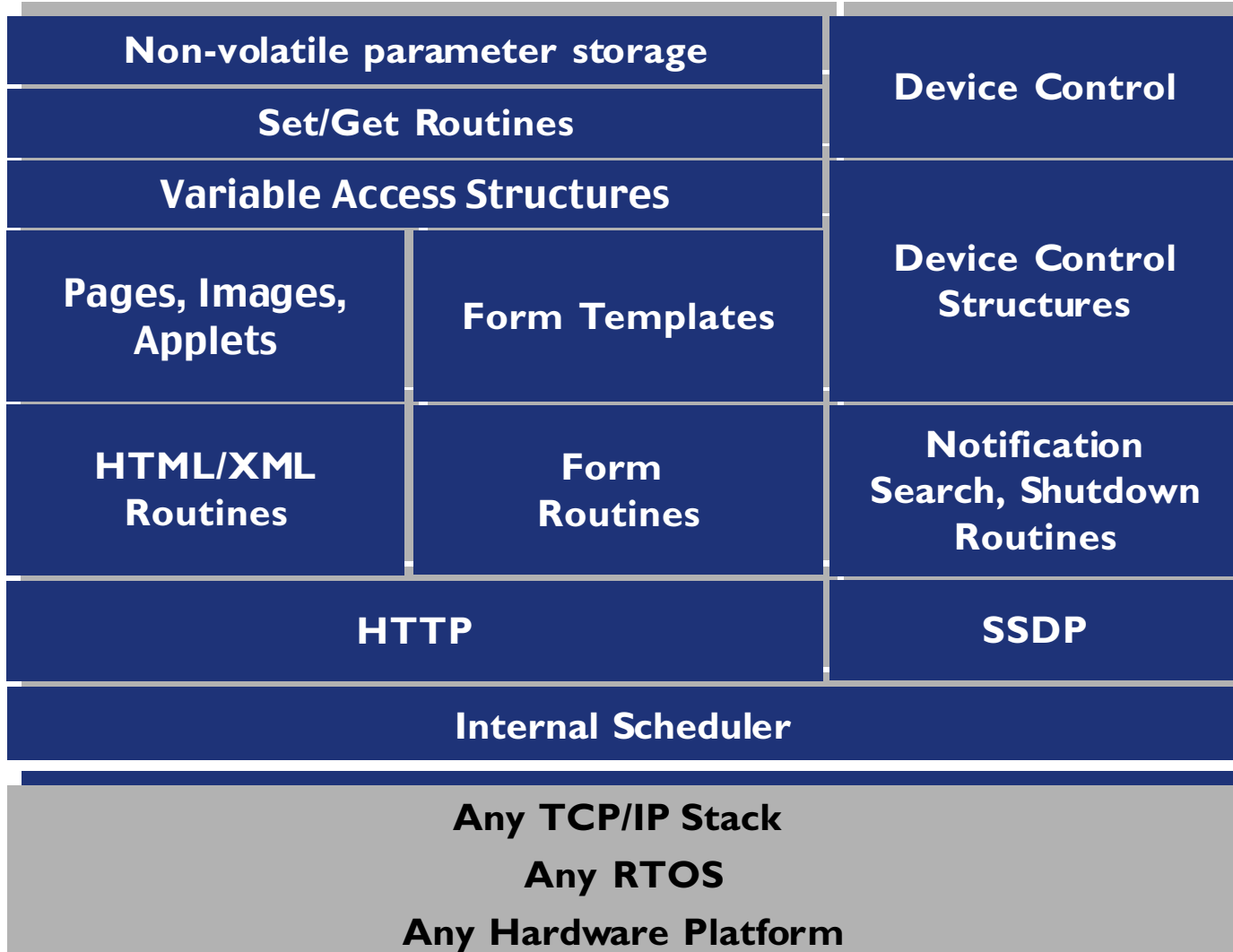


RomPlug Basic Device

- Discovery Services**
- Description and Presentation w/ RomPager**
- Adds Small Footprint (5Kb) to WebServer**
- Simple API**
- Allows Windows Users to Find and Control a device using Internet Explorer**



RomPlug Basic Architecture



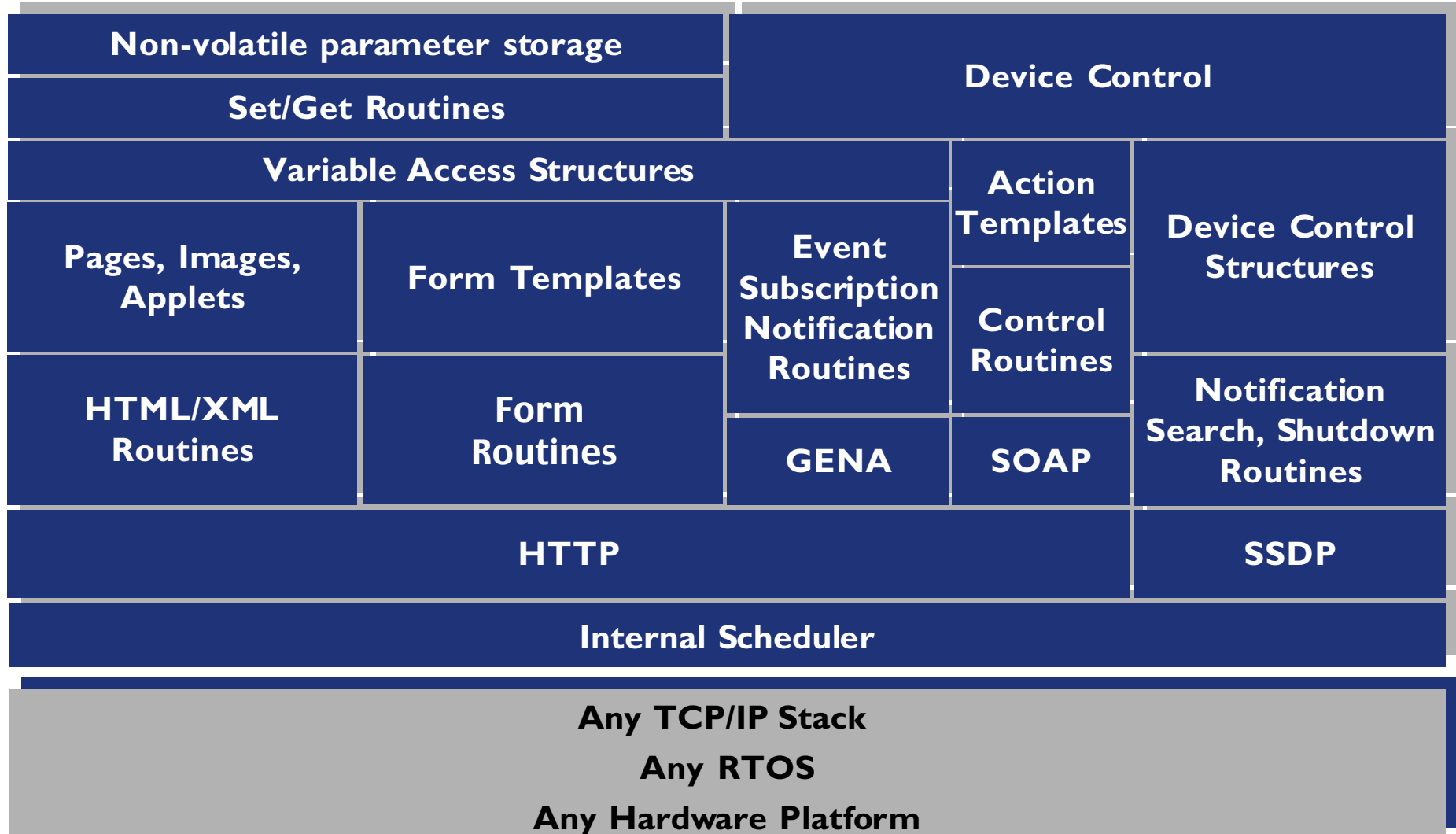


RomPlug Advanced Device

- Discovery, Description, Presentation (same)**
- Adds Control and Eventing Services**
- Hides complexity of underlying protocols**
- Includes RomPager Advanced, RomWebClient and RomXML**
- Small Runtime Footprint (<100Kb)**
- Sample Templates for devices**
- Application Kits available**

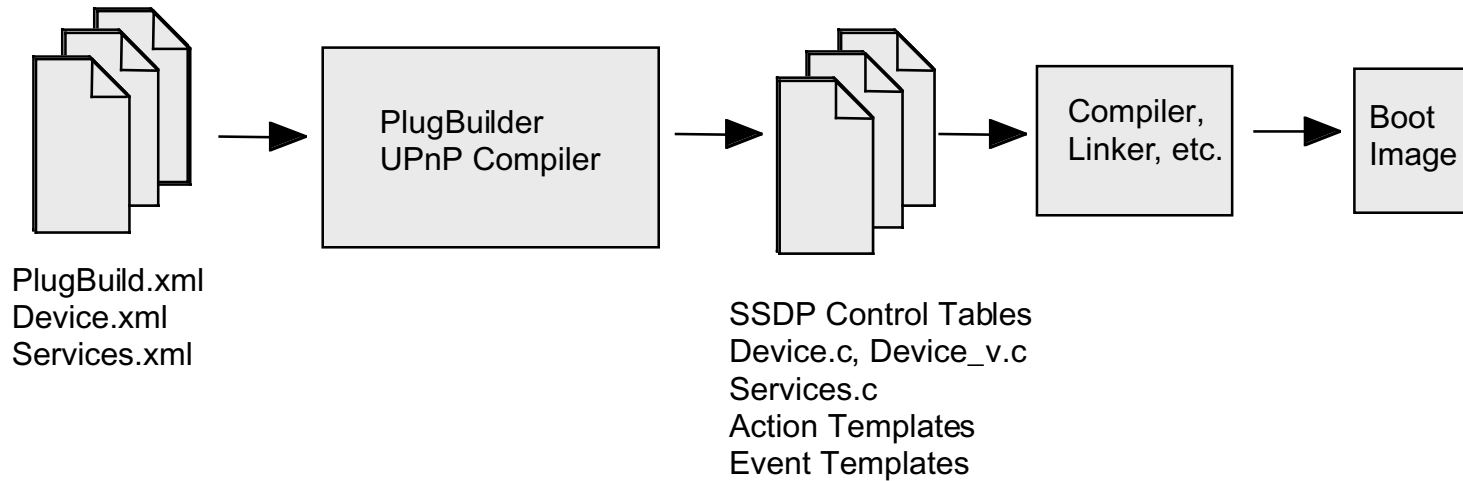


RomPlug Advanced Architecture



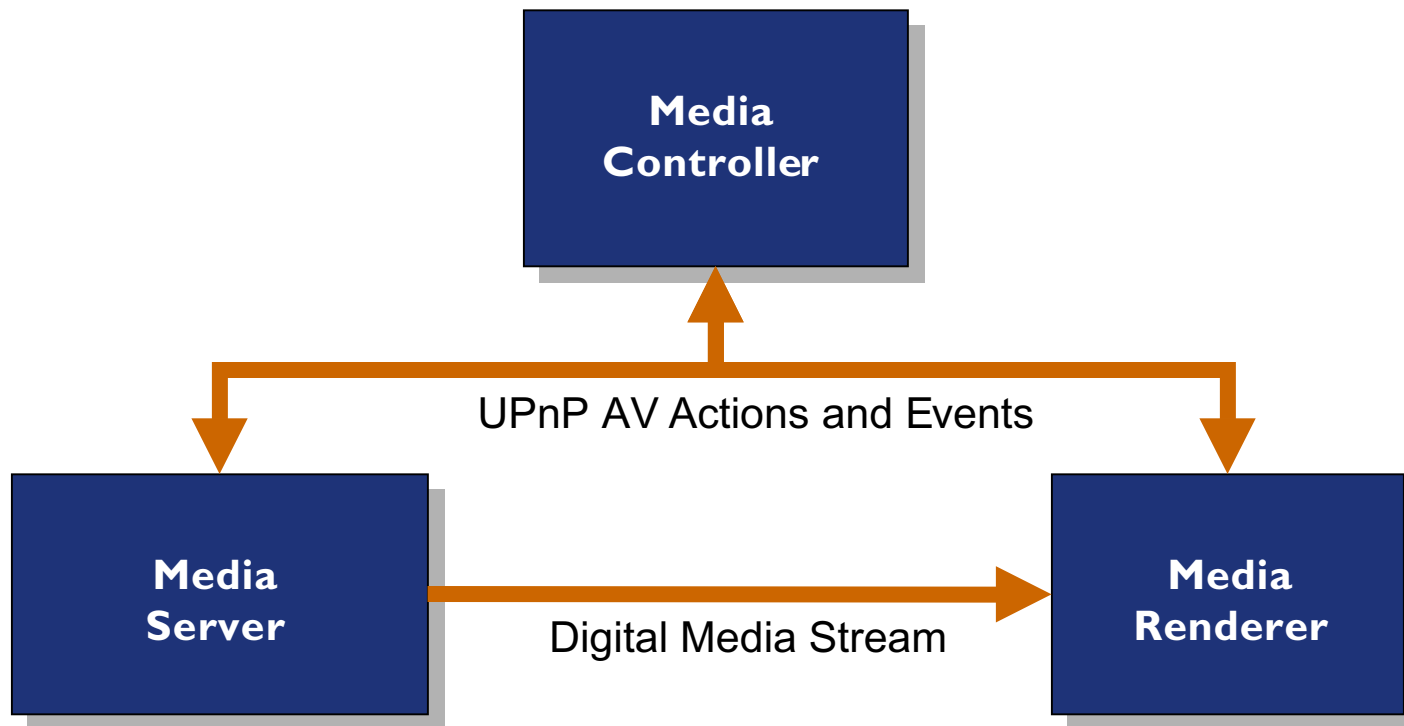


RomPlug Advanced Process Flow



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UPnP AV Architecture





RomPlug Application Toolkits

- ❑ **Based on Forum Templates with extra APIs**
 - ❑ **Specific Solutions for a specific domain**
- ❑ **IGD - Internet Gateway Device**
 - ❑ **Selectable formats (POTS, PPP, DSL, etc.)**
 - ❑ **Sample SOAP actions**
- ❑ **MediaRender, MediaServe, MediaControl**
 - ❑ **DIDL support, HTTP Streaming support**
 - ❑ **General interface to customer database**
 - ❑ **High-level Actions API**



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Summary



Allegro Product Line Benefits

- Reduced Risk**
 - Reduced costs and time to market**
- Highly portable products**
 - Today's and tomorrow's needs**
- Rich, complementary product suites**
 - Today's and tomorrow's needs**
 - Ease of Adoption, Support**
- Innovation driven by syndication**



Allegro Corporate Benefits

- Strong Customer Support**
 - First line: ex-customer**
 - Second line: development engineer**
- Development Partner**
 - Customer-driven enhancements**
- Conservative Financials**
 - Over 9 years of growing strength**
 - Serving current and follow-on needs**



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www.allegrosoft.com